

## WHAT IS CLAIMED IS:

1. A composition of matter selected from the group  
consisting of:

- a) a substantially pure or recombinant A05F12 protein or peptide exhibiting at least about 85% sequence identity over a length of at least about 12 amino acids to SEQ ID NO: 2 or 4;
- b) a natural sequence A05F12 comprising SEQ ID NO: 2 or 4;
- c) a fusion protein comprising A05F12 sequence;
- d) a substantially pure or recombinant A07C03 protein or peptide exhibiting at least about 85% sequence identity over a length of at least about 12 amino acids to SEQ ID NO: 6, 8, or 10;
- e) a natural sequence A07C03 comprising SEQ ID NO: 6, 8, or 10;
- f) a fusion protein comprising A07C03 sequence;
- g) a substantially pure or recombinant E02B02 protein or peptide exhibiting at least about 85% sequence identity over a length of at least about 12 amino acids to SEQ ID NO: 12;
- h) a natural sequence E02B02 comprising SEQ ID NO: 12; and
- i) a fusion protein comprising E02B02 sequence.

2. A substantially pure or isolated protein comprising a segment exhibiting sequence identity to a corresponding portion of an:

- a) A05F12 of Claim 1, wherein:
  - i) said homology is at least about 90% identity and said portion is at least about 9 amino acids;
  - ii) said homology is at least about 80% identity and said portion is at least about 17 amino acids; or

- iii) said homology is at least about 70% identity and said portion is at least about 25 amino acids;
- b) A07C03 of Claim 1, wherein:
- 5 i) said homology is at least about 90% identity and said portion is at least about 9 amino acids;
- 10 ii) said homology is at least about 80% identity and said portion is at least about 17 amino acids; or
- 15 iii) said homology is at least about 70% identity and said portion is at least about 25 amino acids; or
- c) E02B02 of Claim 1, wherein:
- 20 i) said homology is at least about 90% identity and said portion is at least about 9 amino acids;
- 25 ii) said homology is at least about 80% identity and said portion is at least about 17 amino acids; or
- 30 iii) said homology is at least about 70% identity and said portion is at least about 25 amino acids.
3. The composition of matter of Claim 1, wherein said:
- a) A05F12 comprises a mature sequence of Table 1;
- b) A05F12 protein or peptide:
- 35 i) is from a warm blooded animal selected from a primate or rodent, such as a human or mouse;
- ii) comprises at least one polypeptide segment of SEQ ID NO: 2 or 4;
- iii) exhibits a plurality of portions exhibiting said identity;
- 35 iv) is a natural allelic variant of a primate or rodent A05F12;
- v) has a length at least about 30 amino acids;

- vi) exhibits at least two non-overlapping epitopes which are specific for a primate or rodent A05F12;
  - vii) exhibits a sequence identity at least about 90% over a length of at least about 20 amino acids to a primate or rodent A05F12;
  - viii) has a molecular weight of at least 100 kD with natural glycosylation;
  - ix) is a synthetic polypeptide;
  - x) is attached to a solid substrate;
  - xi) is conjugated to another chemical moiety;
  - xii) is a 5-fold or less substitution from natural sequence; or
  - xiii) is a deletion or insertion variant from a natural sequence;
- c) A07C03 comprises a mature sequence of Table 2;
- d) A07C03 protein or peptide:
- i) is from a warm blooded animal selected from a primate or rodent, such as a human or mouse;
  - ii) comprises at least one polypeptide segment of SEQ ID NO: 8 or 10;
  - iii) exhibits a plurality of portions exhibiting said identity;
  - iv) is a natural allelic variant of a primate or rodent A07C03;
  - v) has a length at least about 30 amino acids;
  - vi) exhibits at least two non-overlapping epitopes which are specific for a primate or rodent A07C03;
  - vii) exhibits a sequence identity at least about 90% over a length of at least about 20 amino acids to a primate or rodent A07C03;
  - viii) has a molecular weight of at least 100 kD with natural glycosylation;
  - ix) is a synthetic polypeptide;
  - x) is attached to a solid substrate;
  - xi) is conjugated to another chemical moiety;

- xii) is a 5-fold or less substitution from natural sequence; or
- xiii) is a deletion or insertion variant from a natural sequence;

- e) E02B02 comprises a mature sequence of Table 3; or
- f) E02B02 protein or peptide:

- i) is from a warm blooded animal selected from a primate, such as a human;
- ii) comprises at least one polypeptide segment of SEQ ID NO: 12;
- iii) exhibits a plurality of portions exhibiting said identity;
- iv) is a natural allelic variant of a primate E02B02;
- v) has a length at least about 30 amino acids;
- vi) exhibits at least two non-overlapping epitopes which are specific for a primate E02B02;
- vii) exhibits a sequence identity at least about 90% over a length of at least about 20 amino acids to a primate E02B02;
- viii) has a molecular weight of at least 100 kD with natural glycosylation;
- ix) is a synthetic polypeptide;
- x) is attached to a solid substrate;
- xi) is conjugated to another chemical moiety;
- xii) is a 5-fold or less substitution from natural sequence; or
- xiii) is a deletion or insertion variant from a natural sequence.

4. A composition comprising:

- a) a sterile A05F12 protein or peptide of Claim 1;
- b) said A05F12 protein or peptide of Claim 1 and a carrier, wherein said carrier is:
  - i) an aqueous compound, including water, saline, and/or buffer; and/or

- ii) formulated for oral, rectal, nasal, topical, or parenteral administration;
- c) a sterile A07C03 protein or peptide of Claim 1;
- d) said A07C03 protein or peptide of Claim 1 and a carrier, wherein said carrier is:
  - i) an aqueous compound, including water, saline, and/or buffer; and/or
  - ii) formulated for oral, rectal, nasal, topical, or parenteral administration;
- e) a sterile E02B02 protein or peptide of Claim 1; or
- f) said E02B02 protein or peptide of Claim 1 and a carrier, wherein said carrier is:
  - i) an aqueous compound, including water, saline, and/or buffer; and/or
  - ii) formulated for oral, rectal, nasal, topical, or parenteral administration.

5.. The fusion protein of Claim 1, comprising:

- a) mature protein sequence of Table 1, 2, or 3;
- b) a detection or purification tag, including a FLAG, His6, or Ig sequence; or
- c) sequence of another receptor protein.

6. A kit comprising a protein or polypeptide of Claim 1, and:

- a) a compartment comprising said protein or polypeptide; and/or
- b) instructions for use or disposal of reagents in said kit.

7. A binding compound comprising an antigen binding site from an antibody, which specifically binds to a natural:

A) A05F12 protein of Claim 1, wherein:

- a) said protein is a primate or rodent protein;
- b) said binding compound is an Fv, Fab, or Fab2 fragment;

c) said binding compound is conjugated to another chemical moiety; or

d) said antibody:

i) is raised against a peptide sequence of a mature polypeptide of Table 1;

ii) is raised against a mature primate or rodent A05F12;

iii) is raised to a purified human A05F12;

iv) is raised to a purified mouse A05F12;

v) is immunoselected;

vi) is a polyclonal antibody;

vii) binds to a denatured A05F12;

viii) exhibits a  $K_d$  to antigen of at least 30  $\mu M$ ;

ix) is attached to a solid substrate, including a bead or plastic membrane;

x) is in a sterile composition; or

xi) is detectably labeled, including a radioactive or fluorescent label;

B) A07C03 protein of Claim 1, wherein:

a) said protein is a primate or rodent protein;

b) said binding compound is an Fv, Fab, or Fab2 fragment;

c) said binding compound is conjugated to another chemical moiety; or

d) said antibody:

i) is raised against a peptide sequence of a mature polypeptide of Table 2;

ii) is raised against a mature primate or rodent A07C03;

iii) is raised to a purified human A07C03;

iv) is raised to a purified mouse A07C03;

v) is immunoselected;

vi) is a polyclonal antibody;

vii) binds to a denatured A07C03;

viii) exhibits a  $K_d$  to antigen of at least 30  $\mu M$ ;

- ix) is attached to a solid substrate,  
including a bead or plastic membrane;
- x) is in a sterile composition; or
- xi) is detectably labeled, including a  
radioactive or fluorescent label; or

5 C) E02B02 protein of Claim 1, wherein:

- a) said protein is a primate protein;
- b) said binding compound is an Fv, Fab, or Fab2  
fragment;
- 10 c) said binding compound is conjugated to  
another chemical moiety; or
- d) said antibody:

- i) is raised against a peptide sequence of  
a mature polypeptide of Table 3;
- 15 ii) is raised against a mature primate  
E02B02;
- iii) is raised to a purified human E02B02;
- iv) is immunoselected;
- v) is a polyclonal antibody;
- 20 vi) binds to a denatured E02B02;
- vii) exhibits a  $K_d$  to antigen of at least  
30  $\mu$ M;
- viii) is attached to a solid substrate,  
including a bead or plastic membrane;
- 25 ix) is in a sterile composition; or
- x) is detectably labeled, including a  
radioactive or fluorescent label

8. A kit comprising said binding compound of Claim  
30 7, and:

- a) a compartment comprising said binding compound;  
and/or
- b) instructions for use or disposal of reagents in  
said kit.

35 9. The kit of Claim 8 capable of making a  
qualitative or quantitative analysis.

10. A composition comprising:

- 5
- a) a sterile binding compound of Claim 7; or
  - b) said binding compound of Claim 7 and a carrier,  
wherein said carrier is:
    - i) an aqueous compound, including water, saline,  
and/or buffer; and/or
    - ii) formulated for oral, rectal, nasal, topical,  
or parenteral administration.

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11. An isolated or recombinant nucleic acid encoding  
a protein or peptide or fusion protein of Claim 1, wherein:

- 15
- a) said A05F12 protein or peptide is from a mammal,  
including a primate or rodent;
  - b) said nucleic acid:
    - i) encodes an antigenic peptide sequence of  
Table 1;
    - ii) encodes a plurality of antigenic peptide  
sequences of Table 1;
    - 20 iii) exhibits at least about 80% identity to a  
natural cDNA encoding said segment;
    - iv) is an expression vector;
    - v) further comprises an origin of replication;
    - vi) is from a natural source;
    - 25 vii) comprises a detectable label;
    - viii) comprises synthetic nucleotide sequence;
    - ix) is less than 6 kb, preferably less than 3  
kb;
    - x) is from a mammal, including a primate or  
30 rodent;
    - xi) comprises a natural full length coding  
sequence;
    - xii) is a hybridization probe for a gene  
encoding said A05F12; or
    - 35 xiii) is a PCR primer, PCR product, or  
mutagenesis primer;



- c) said A05C03 is from a mammal, including a primate or rodent;
- d) said nucleic acid:
- i) encodes an antigenic peptide sequence of Table 2;
  - ii) encodes a plurality of antigenic peptide sequences of Table 2;
  - iii) exhibits at least about 80% identity to a natural cDNA encoding said segment;
  - iv) is an expression vector;
  - v) further comprises an origin of replication;
  - vi) is from a natural source;
  - vii) comprises a detectable label;
  - viii) comprises synthetic nucleotide sequence;
  - ix) is less than 6 kb, preferably less than 3 kb;
  - x) is from a mammal, including a primate or rodent;
  - xi) comprises a natural full length coding sequence;
  - xii) is a hybridization probe for a gene encoding said A07C03; or
  - xiii) is a PCR primer, PCR product, or mutagenesis primer;
- e) said E02B02 is from a mammal, including a primate; or
- f) said nucleic acid:
- i) encodes an antigenic peptide sequence of Table 3;
  - ii) encodes a plurality of antigenic peptide sequences of Table 3;
  - iii) exhibits at least about 80% identity to a natural cDNA encoding said segment;
  - iv) is an expression vector;
  - v) further comprises an origin of replication;
  - vi) is from a natural source;
  - vii) comprises a detectable label;

- viii) comprises synthetic nucleotide sequence;  
ix) is less than 6 kb, preferably less than 3 kb;  
x) is from a mammal, including a primate;  
xi) comprises a natural full length coding sequence;  
xii) is a hybridization probe for a gene encoding said E02B02; or  
xiii) is a PCR primer, PCR product, or mutagenesis primer;

12. A cell, tissue, or organ comprising a recombinant nucleic acid of Claim 11.

13. The cell of Claim 12, wherein said cell is:

- a) a prokaryotic cell;  
b) a eukaryotic cell;  
c) a bacterial cell;  
d) a yeast cell;  
e) an insect cell;  
f) a mammalian cell;  
g) a mouse cell;  
h) a primate cell; or  
i) a human cell.

14. A kit comprising said nucleic acid of Claim 11, and:

- a) a compartment comprising said nucleic acid;  
b) a compartment further comprising a primate or rodent A05F12 protein or polypeptide;  
c) a compartment further comprising a primate or rodent A07C03 protein or polypeptide;  
d) a compartment further comprising a primate E02B02 protein or polypeptide; and/or  
e) instructions for use or disposal of reagents in said kit.

15. The kit of Claim 14 capable of making a qualitative or quantitative analysis.

16. A nucleic acid which:

- 5 a) hybridizes under wash conditions of 30° C and less than 2M salt to SEQ ID NO: 1 or 3;
- b) exhibits at least about 85% identity over a stretch of at least about 30 nucleotides to a primate or rodent A05F12;
- 10 c) hybridizes under wash conditions of 30° C and less than 2M salt to SEQ ID NO: 5, 7, or 9;
- d) exhibits at least about 85% identity over a stretch of at least about 30 nucleotides to a primate or rodent A07C03;
- 15 e) hybridizes under wash conditions of 30° C and less than 2M salt to SEQ ID NO: 11; or
- b) exhibits at least about 85% identity over a stretch of at least about 30 nucleotides to a primate E02B02.

20 17. The nucleic acid of Claim 16, wherein:

- a) said wash conditions are at 45° C and/or 500 mM salt; or
- 25 b) said identity is at least 90% and/or said stretch is at least 55 nucleotides.

18. The nucleic acid of Claim 17, wherein:

- a) said wash conditions are at 55° C and/or 150 mM salt; or
- 30 b) said identity is at least 95% and/or said stretch is at least 75 nucleotides.

19. A method of modulating physiology or development of a cell or tissue culture cells comprising contacting said cell with:

- 35 a) a binding composition of Claim 7, which binds to a primate or rodent A05F12;

- b) a binding composition of Claim 7, which binds to a primate or rodent A07C03;
- c) a binding composition of Claim 7, which binds to a primate E01B02;
- d) a antisense nucleic acid which blocks expression of a primate or rodent A05F12;
- e) a antisense nucleic acid which blocks expression of a primate or rodent A07C03; or
- f) a antisense nucleic acid which blocks expression of a primate E02B02.